

S/N unknown

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: NAKATANI et al. Serial No.: unknown
Filed: concurrent herewith Docket No.: 10873.860US01
Title: COMPONENT BUILT-IN MODULE AND METHOD FOR PRODUCING
THE SAME

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By: 

Name: Chris Stordahl

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In connection with the above-identified application filed herewith, please enter the following preliminary amendment (marked-up copy attached):

IN THE CLAIMS

4. (Amended) The component built-in module according to claim 1, comprising a through hole that extends through all of the core layer, the electric insulating layer and the wiring pattern.

5. (Amended) The component built-in module according to claim 1, comprising a core layer formed of an electric insulating material; an electric insulating layer comprising an electric insulating material formed of a mixture including an

inorganic filler and a thermosetting resin, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed of a copper foil; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns are connected electrically to each other by the inner vias.

6. (Amended) The component built-in module according to claim 1, comprising a core layer formed of an electric insulating material; an electric insulating layer comprising an insulating material formed of a thermosetting resin, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed by copper-plating; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns formed by the copper-plating are connected electrically to each other by the inner vias.

7. (Amended) The component built-in module according to claim 1, comprising a core layer formed of an electric insulating material; an electric insulating layer formed of an organic film having thermosetting resins on both surfaces, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed of a copper foil; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns are connected electrically to each other by the inner vias.

8. (Amended) The component built-in module according to claim 1, comprising a core layer formed of an electric insulating material; and a ceramic substrate having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin.

9. (Amended) The component built-in module according to claim 1, comprising a core layer formed of an electric insulating material; and a plurality of ceramic substrates having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin; and the plurality of ceramic substrates comprise dielectric materials having different dielectric constants.

10. (Amended) The component built-in module according to claim 1, wherein a film-shaped passive component is disposed between the wiring patterns formed on at least one surface of the core layer.

17. (Amended) The method for producing the component built-in module according to claim 14, wherein the film-shaped component is at least one selected from the group consisting of a resistor, a capacitor and an inductor, which is formed of a thin film or a mixture comprising an inorganic filler and a thermosetting resin; and the film-shaped component is formed by one method

selected from the group consisting of vapor deposition method, MO-CVD method or a thick film printing method.

Please add the following new claims:

22. (New) The method for producing the component built-in module according to claim 16, wherein the film-shaped component is at least one selected from the group consisting of a resistor, a capacitor and an inductor, which is formed of a thin film or a mixture comprising an inorganic filler and a thermosetting resin; and the film-shaped component is formed by one method selected from the group consisting of vapor deposition method, MO-CVD method or a thick film printing method.

23. (New) The component built-in module according to claim 2, comprising a through hole that extends through all of the core layer, the electric insulating layer and the wiring pattern.

24. (New) The component built-in module according to claim 3, comprising a through hole that extends through all of the core layer, the electric insulating layer and the wiring pattern.

25. (New) The component built-in module according to claim 2, comprising a core layer formed of an electric insulating material; an electric insulating layer comprising an electric insulating material formed of a mixture including an inorganic filler and a thermosetting resin, which is formed on at least one surface

of the core layer; and a plurality of wiring patterns formed of a copper foil;
wherein the core layer has a plurality of wiring patterns formed of a copper foil
and a plurality of inner vias formed of a conductive resin, and the wiring patterns
are connected electrically to each other by the inner vias.

26. (New) The component built-in module according to claim 3, comprising a
core layer formed of an electric insulating material; an electric insulating layer
comprising an electric insulating material formed of a mixture including an
inorganic filler and a thermosetting resin, which is formed on at least one surface
of the core layer; and a plurality of wiring patterns formed of a copper foil;
wherein the core layer has a plurality of wiring patterns formed of a copper foil
and a plurality of inner vias formed of a conductive resin, and the wiring patterns
are connected electrically to each other by the inner vias.

27. (New) The component built-in module according to claim 2, comprising a
core layer formed of an electric insulating material; an electric insulating layer
comprising an insulating material formed of a thermosetting resin, which is
formed on at least one surface of the core layer; and a plurality of wiring patterns
formed by copper-plating; wherein the core layer has a plurality of wiring patterns
formed of a copper foil and a plurality of inner vias formed of a conductive resin,
and the wiring patterns formed by the copper-plating are connected electrically to
each other by the inner vias.

28. (New) The component built-in module according to claim 3, comprising a core layer formed of an electric insulating material; an electric insulating layer comprising an insulating material formed of a thermosetting resin, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed by copper-plating; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns formed by the copper-plating are connected electrically to each other by the inner vias.

29. (New) The component built-in module according to claim 2, comprising a core layer formed of an electric insulating material; an electric insulating layer formed of an organic film having thermosetting resins on both surfaces, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed of a copper foil; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns are connected electrically to each other by the inner vias.

30. (New) The component built-in module according to claim 3, comprising a core layer formed of an electric insulating material; an electric insulating layer formed of an organic film having thermosetting resins on both surfaces, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed of a copper foil; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns are connected electrically to each other by the inner vias.

31. (New) The component built-in module according to claim 2, comprising a core layer formed of an electric insulating material; and a ceramic substrate having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin.

32. (New) The component built-in module according to claim 3, comprising a core layer formed of an electric insulating material; and a ceramic substrate having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin.

33. (New) The component built-in module according to claim 2, comprising a core layer formed of an electric insulating material; and a plurality of ceramic substrates having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin; and the plurality of ceramic substrates comprise dielectric materials having different dielectric constants.

34. (New) The component built-in module according to claim 3, comprising a core layer formed of an electric insulating material; and a plurality of ceramic substrates having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring

patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin; and the plurality of ceramic substrates comprise dielectric materials having different dielectric constants.

35. (New) The component built-in module according to claim 2, wherein a film-shaped passive component is disposed between the wiring patterns formed on at least one surface of the core layer.

36. (New) The component built-in module according to claim 3, wherein a film-shaped passive component is disposed between the wiring patterns formed on at least one surface of the core layer.

REMARKS

The above preliminary amendment is made to remove multiple dependencies from claims 4, 5, 6, 7, 8, 9, 10 and 17.

Applicants respectfully request that the preliminary amendment described herein be entered into the record prior to calculation of the filing fee and prior to examination and consideration of the above-identified application.

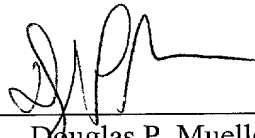
If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 371.5237.

Respectfully submitted,

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Dated: December 27, 2001

By



Douglas P. Mueller
Reg. No. 30,300

DPM/tvm

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4. (Amended) The component built-in module according to [any one of claims 1 to 3] claim 1, comprising a through hole that extends through all of the core layer, the electric insulating layer and the wiring pattern.

5. (Amended) The component built-in module according to [any one of claims 1 to 3] claim 1, comprising a core layer formed of an electric insulating material; an electric insulating layer comprising an electric insulating material formed of a mixture including an inorganic filler and a thermosetting resin, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed of a copper foil; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns are connected electrically to each other by the inner vias.

6. (Amended) The component built-in module according to [any one of claims 1 to 3] claim 1, comprising a core layer formed of an electric insulating material; an electric insulating layer comprising an insulating material formed of a thermosetting resin, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed by copper-plating; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns formed by the copper-plating are connected electrically to each other by the inner vias.

7. (Amended) The component built-in module according to [any one of claims 1 to 3] claim 1, comprising a core layer formed of an electric insulating material; an electric insulating layer

formed of an organic film having thermosetting resins on both surfaces, which is formed on at least one surface of the core layer; and a plurality of wiring patterns formed of a copper foil; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin, and the wiring patterns are connected electrically to each other by the inner vias.

8. (Amended) The component built-in module according to [any one of claims 1 to 3] claim 1, comprising a core layer formed of an electric insulating material; and a ceramic substrate having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin.

9. (Amended) The component built-in module according to [any one of claims 1 to 3] claim 1, comprising a core layer formed of an electric insulating material; and a plurality of ceramic substrates having a plurality of wiring patterns and inner vias adhered onto at least one surface of the core layer; wherein the core layer has a plurality of wiring patterns formed of a copper foil and a plurality of inner vias formed of a conductive resin; and the plurality of ceramic substrates comprise dielectric materials having different dielectric constants.

10. (Amended) The component built-in module according to [any one of claims 1 to 3] claim 1, wherein a film-shaped passive component is disposed between the wiring patterns formed on at least one surface of the core layer.

17. (Amended) The method for producing the component built-in module according to claim 14 [or 16], wherein the film-shaped component is at least one selected from the group consisting of a resistor, a capacitor and an inductor, which is formed of a thin film or a mixture comprising an inorganic filler and a thermosetting resin; and the film-shaped component is formed by one method selected from the group consisting of vapor deposition method, MO-CVD method or a thick film printing method.